



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/784,226	02/24/2004	Masanori Takeuchi	110184.01	8354
25944	7590	03/25/2005	EXAMINER	
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			NORRIS, JEREMY C	
			ART UNIT	PAPER NUMBER
			2841	

DATE MAILED: 03/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/784,226

Applicant(s)

TAKEUCHI, MASANORI

Examiner

Jeremy C. Norris

Art Unit

2841

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on 24 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☒ Certified copies of the priority documents have been received in Application No. 09/912,492.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>2-24-04</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Priority***

Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 09/912,492, filed on 26 July 2001.

### ***Drawings***

Figure 12 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-11 are rejected under 35 U.S.C. 102(e) as being anticipated by US 6,528,874 (Ijima).

Ijima discloses, referring to figures 7A-7H, a flexible wiring board having; a first resin film (40); a first wiring film, a bottom face of which is embedded into the first resin film (see fig 7C); and a second wiring film, a bottom face of which is in contact with a surface of the first resin film (see fig 7C) [**claim 1**], wherein a surface of the first wiring film is flush with a surface of the second wiring film (see fig 7C) [**claim 2**], wherein a second resin film (43) is formed on the surfaces of the first and second wiring films [**claim 3**], wherein at least one first opening (44) is formed in the part of the second resin film where the first wiring film is disposed (see fig 7D) [**claim 4**], wherein at least one second opening (44) is formed in a part of the second resin film where the second wiring film is disposed (see fig 7D) [**claim 5**], wherein at least one third opening (41) is formed in a part of the first resin film where the first wiring film is disposed (see figs 7B & 7C) [**claim 6**], wherein a metal bump (45) is located in at least one of the first openings [**claim 7**], wherein a metal bump (45) is located in at least one of the second openings [**claim 8**], wherein a metal bump is located in at least one of the third openings (see fig 7C) [**claim 9**], wherein the first resin film has a flat surface at an opposite side to where the first and second wiring film are disposed (see figs. 7B & 7C) [**claim 10**].

Similarly, Ijima discloses, referring to figures 7A-7H, the intermediate product of a flexible wiring board having a first resin film (40), and a metal foil (42) wherein the metal foil has a thin film part and a thick film part connecting to the thin film part, the thick film

Art Unit: 2841

part has a larger thickness than a thickness of the thin film part and is connected to the thin film part, a surface of the metal foil is flush, a part of a bottom face of the metal foil, where the thick film part is disposed, is embedded into the first resin film (in opening 41, see figs 7B & 7C), a part of the bottom face of the metal foil, where the thin film part is disposed, is in contact with a surface of the first resin film, and the first resin film has a flat surface in an opposite side to where the metal foil is disposed (see fig. 7C) [claim 11].

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ijima.

Ijima discloses, referring to figures 7A-7H a multi-layer flexible wiring board comprising a first flexible wiring board wherein the first flexible wiring board having: a

Art Unit: 2841

first resin film (40); a first wiring film, a bottom face of which is embedded into the first resin film (in openings 41); a second wiring film, a bottom face of which is in contact with a surface of the first resin film (see fig 7C); a second resin film (43) formed on a surface of the first wiring film and a surface of the second wiring film, and at least one first opening (44) is formed in a part of the second resin film where the first wiring film is disposed, at least one second opening (44) is formed in a part of the second resin film wherein a face of the second flexible wiring board at a side where the wire is disposed is located toward a face of the first flexible wiring board at a side where the second resin film is disposed, a first bump (45) is arranged in the first opening. Ijima does not specifically disclose a second wiring board [claim 12] connected to the first wiring board via the second bump. However, Ijima does teach using the bumps to connect to other boards (see fig 8C). Ijima also teaches connecting multiple first wiring boards (see col. 32, lines 1-10). Therefore, it would have been obvious, to one having ordinary skill in the art, at the time of invention, to attach a second and even a third [claim 13] identical board to the conductive bumps. The motivation for doing so would have been to make a higher density device capable of transmitting more signals simultaneously.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following documents disclose flexible circuits:

US 6,596,947      Kurita et al.,

US 6,822,169      Kataoka.

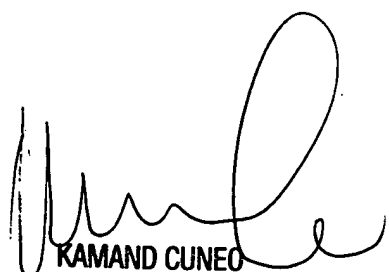
Art Unit: 2841

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeremy C. Norris whose telephone number is 571-272-1932. The examiner can normally be reached on Monday - Friday, 9:30 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo can be reached on 571-272-1957. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JCSN



**KAMAND CUNEO**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2800**